

Remarks/Arguments

Claim Summary

By this Amendment, claim 15 has been amended, and accordingly, claims 15-27 are now pending in the application. Dependent claims 20 and 26 have been withdrawn from consideration, although it is understood that these claims would be allowed upon the allowance of the claim or claims from which they depend.

35 U.S.C. §103

Claims 15-27 were rejected under 35 U.S.C. §103 as being obvious over Kim et al. (Appl. Phys. Lett., 71, pp. 3604-3606) in view of Yun et al. (US 6447908) and Soininen (US 5496597), and further in view of Comizzoli et al. (US 5851849), for the reasons stated at pages 2-4 of the Office Action. Applicants respectfully traverse this rejection with respect to the now-pending claims.

Applicants understand the Examiner's reasoning to be as follows:

- (1) Kim et al. teaches an ALD process in which TMA is the first reactant introduced into the chamber and water is the second reactant introduced into the chamber;
- (2) Yun et al. allegedly teaches that the order of the first and second reactants is unimportant, and therefore, according to the Examiner it would be obvious to make water the first reactant in Kim et al. and TMA the second reactant in Kim et al.;
- (3) Soininen teaches that water may be substituted with oxygen as a reactant in an ALD process, and therefore, together with Yun et al., the Examiner contends it would be obvious to

make oxygen the first reactant in Kim et al. and TMA the second reactant in Kim et al.

- (4) If Kim et al. is modified as per paragraph (3) above, the Examiner contends that flushing of the substrate surface would inherently result since oxygen is the first reactant introduced into the chamber.

Respectfully, Applicants do not agree that Yun et al. contains any teaching or suggestion that would motivate one of ordinary skill to modify Kim et al. to douse the substrate surface with water first, and then TMA. Further, Kim et al. specifically teaches the removal of native oxides prior to the ALD process, making it further unclear to Applicants why one skill in the art would modify Kim et al. to douse the wafer surface with water (or oxygen) prior to dousing with TMA.

However, in an effort to expedite prosecution, but without acquiescing to the Examiner's reasoning, independent claim 15 has been amended to clarify that the chemical composition of the flushing agent (oxygen gas) is different than the chemical composition of the first and second reactants. Thus, the amended claim 15 defines over the Examiner's suggested modification of the references in which the alleged flushing agent would have the same composition as the second reactant. Further, there is no suggestion in any of the references of record that the chemical composition of second reactant should be changed from one ALD cycle to the next.

For *at least* the reasons stated above, Applicants respectfully contend that Claims 15-29 would not have been obvious to one of ordinary skill in art in view of the teachings of the cited references, taken individually or in combination.


Conclusion

No other issues remaining, reconsideration and favorable action upon the Claims 15-27 now-pending in the application are requested.

Respectfully submitted,

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